

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A transreflector comprising a transparent substrate having opposite sides, optical deformities on at least one of said sides, a plurality of reflective surfaces on or in said substrate each having a reflective layer or covering for reflecting light striking one of said sides, and a plurality of light transmissive surfaces on or in said substrate for transmitting light striking one of said sides.

Claim 2 (original): The transreflector of claim 1 wherein said substrate is a film.

Claim 3 (original): The transreflector of claim 1 wherein said substrate is a multilayer film.

Claim 4 (original): The transreflector of claim 3 wherein said multilayer film is comprised of a carrier film and an ultra-violet curable layer.

Claim 5 (original): The transreflector of claim 1 wherein said substrate is a plate.

Claim 6 (original): The transreflector of claim 1 wherein said reflective surfaces and said transmissive surfaces vary in at least one of the following: size, shape, angle, and orientation.

Claim 7 (currently amended): The transreflector of claim 1 wherein said deformities have at least two surfaces, one of said surfaces being said reflective surfaces each having said reflector layer or covering, and the other of said surfaces being said light transmissive surfaces.

Claim 8 (original - withdrawn): The transreflector of claim 1 wherein at least some of said optical deformities overlap each other.

Claim 9 (original - withdrawn): The transreflector of claim 8 wherein at least some of said optical deformities are staggered with respect to each other.

Claim 10 (original - withdrawn): The transreflector of claim 8 wherein at least some of said optical deformities intersect each other.

Claim 11 (original - withdrawn): The transreflector of claim 8 wherein at least some of said optical deformities interlock each other.

Claim 12 (original - withdrawn): The transreflector of claim 1 wherein said optical deformities are randomized.

Claim 13 (currently amended): A transreflector comprising a transparent substrate having opposite sides, a plurality of sloping reflective surfaces on or in said substrate each having a reflective layer or covering for reflecting light striking one side of said substrate, and a plurality of other sloping light transmissive surfaces on or in said substrate for transmitting light striking the other side of said substrate.

Claim 14 (currently amended): The transreflector of claim 13 wherein said reflective surfaces are shaped, oriented or angled to reflect a greater portion of the light striking said one side of said substrate.

Claim 15 (currently amended): The transreflector of claim 13 wherein said light transmissive surfaces are shaped, oriented or angled to transmit a greater portion of the light striking the other side of said substrate.

Claim 16 (currently amended): The transreflector of claim 13 wherein said reflective surfaces are shaped, oriented or angled to reflect a greater portion of the light striking said one side of said substrate and said light transmissive surfaces are shaped, oriented or angled to transmit a greater portion of the light striking the other side of said substrate.

Claims 17 and 18 (canceled)

Claim 19 (original - withdrawn): The transreflector of claim 13 wherein said reflective surfaces are sloped outward relative to the longitudinal axis of said substrate and said light transmissive surfaces are sloped inward relative to the longitudinal axis of said substrate.

Claim 20 (original): The transreflector of claim 13 wherein said reflective surfaces have a substantially larger projected surface area, when projected onto a plane parallel to said substrate, than the projected surface area of said light transmissive surfaces when projected onto a plane parallel to said substrate.

Claim 21 (original): The transreflector of claim 13 wherein said light transmissive surfaces have a substantially larger projected surface area, when projected onto a plane normal to the angle of maximum intensity of the light striking the other side of said substrate, than the projected surface area of said reflective surfaces when projected onto a plane normal to the angle of maximum intensity of the light striking the other side of said substrate.

Claim 22 (original): The transreflector of claim 13 wherein said light transmissive surfaces have a substantially larger projected surface area, when projected onto a plane normal to the angle of maximum intensity of the light striking the other side of said substrate, than the projected surface area of said reflective surfaces when projected onto a plane normal to the angle of maximum intensity of the light striking the

other side of said substrate, the light striking the other side of said substrate coming from a backlight.

Claim 23 (original): The transreflector of claim 13 wherein said reflective surfaces are substantially planar.

Claim 24 (original - withdrawn): The transreflector of claim 13 wherein said reflective surfaces are curved.

Claim 25 (currently amended): The transreflector of claim 13 wherein said light transmissive surfaces are textured or lensed to redirect the light passing through said light transmissive surfaces.

Claim 26 (currently amended): The transreflector of claim 13 wherein said light transmissive surfaces have optical shapes on or in said light transmissive surfaces.

Claim 27 (original): The transreflector of claim 13 wherein said light transmissive surfaces have an antireflection coating.

Claim 28 (original): The transreflector of claim 13 wherein said reflective surfaces and said light transmissive surfaces are formed by a plurality of grooves in said substrate.

Claim 29 (currently amended): The transreflector of claim 13 wherein said reflective surfaces and said light transmissive surfaces are formed by a pattern of individual optical deformities on or in said substrate each having a length and width substantially smaller than the length and width of the substrate and having a well defined shape.

Claim 30 (original): The transreflector of claim 13 wherein said reflective surfaces and said light transmissive surfaces are on or in said other side of said substrate and said one side of said substrate is shaped to redirect light.

Claim 31 (original): The transreflector of claim 30 wherein said one side of said substrate has at least one of a texture, and optical deformities shaped to redirect the light transmitted by said transreflector.

Claim 32 (currently amended): The transreflector of claim 31 wherein said one side has said optical deformities which comprise at least one of the following: prismatic grooves, lenticular grooves, cross grooves, and individual optical elements or deformities of well defined shape.

Claim 33 (original - withdrawn): The transreflector of claim 13 wherein said reflective surfaces and said light transmissive surfaces are on or in said one side of said substrate and said other side of said substrate is shaped to redirect or transmit light.

Claim 34 (original - withdrawn): The transreflector of claim 33 wherein said other side of said substrate has optical shapes that transmit light from a backlight or other light source and redirect the light to said light transmissive surfaces.

Claim 35 (original - withdrawn): The transreflector of claim 34 wherein said optical shapes comprise at least one of the following: prismatic grooves, lenticular grooves, cross grooves, and individual optical deformities of well defined shape.

Claim 36 (original - withdrawn): The transreflector of claim 34 wherein said optical shapes comprise a pattern of individual optical deformities of well defined shape on or in said other side of said substrate.

Claim 37 (original - withdrawn): The transreflector of claim 36 wherein the size of said optical deformities varies across said substrate.

Claim 38 (original - withdrawn): The transreflector of claim 36 wherein the density of said optical deformities varies across said substrate.

Claim 39 (original - withdrawn): The transreflector of claim 36 wherein the orientation of said optical deformities varies across said substrate.

Claim 40 (original - withdrawn): The transreflector of claim 36 wherein the angle of said optical deformities varies across said substrate.

Claim 41 (original - withdrawn): The transreflector of claim 36 wherein at least some of said optical deformities vary in at least one of the following characteristics: position, size, height, density, angle, orientation, and shape.

Claims 42-80 (canceled)

Claim 81 (currently amended): A transreflector and backlight system comprising a backlight including a light emitting panel member having a panel surface that emits a light ray output distribution, and a transreflector comprised of one or more layers ~~each having a constant index of refraction~~, said transreflector having one side in close proximity to the panel surface of the backlight, a plurality of light transmissive surfaces on or in said transreflector that ~~transmits~~ transmit greater than 50% of the light ray output distribution from the panel surface incident on the one side, ~~and on another side opposite the one side~~ and a plurality of reflective surfaces on or in said transreflector each having a reflective layer or covering that reflects more than 50% of ambient light incident on the other side.

Claim 82 (original): The system of claim 81 further comprising a display in close proximity to the other side of the transreflector for receiving ambient light reflected by the transreflector and light from the backlight transmitted by the transreflector.

Claim 83 (original): The system of claim 82 wherein the display is a liquid crystal display.

Claim 84 (currently amended): A transreflector and backlight system comprising a backlight including a light emitting panel member having at least one input edge for receiving light from a light source and at least one panel surface for emitting light, and a transreflector for transmitting light emitted by said panel surface incident on one side of said transreflector and for reflecting ambient light incident on the opposite side of said transreflector, at least one of said sides of said transreflector having optical deformities, a plurality of reflective surfaces on or in said transreflector each having a reflective layer or covering for reflecting ambient light striking said opposite side of said transreflector, and a plurality of light transmissive surfaces on or in said transreflector for transmitting light emitted by said panel surface striking said one side of said transreflector.

Claim 85 (original): The system of claim 84 wherein said deformities have at least two surfaces, one of said surfaces being said reflective surfaces and the other of said surfaces being said light transmissive surfaces.

Claim 86 (original - withdrawn): The system of claim 84 wherein said panel member has a pattern of individual optical deformities that are aligned with the optical deformities of said transreflector to increase the efficiency with which light is transmitted from said panel member to said transreflector.

Claim 87 (original - withdrawn): The system of claim 86 wherein refractive index matching material is contained in a region between the aligned deformities of said panel

member and said transreflector to further increase the efficiency with which light is transmitted from said panel member to said transreflector.

Claim 88 (original - withdrawn): The system of claim 86 wherein said transreflector is comprised of multiple substrate layers.

Claim 89 (original - withdrawn): The system of claim 88 wherein said transreflector includes a metallized film layer.

Claim 90 (currently amended): A transreflector and backlight system comprising a backlight including a light emitting panel member having at least one input edge for receiving light from a light source and at least one panel surface for emitting light, and a transreflector for transmitting light emitted by said panel surface incident on one side of said transreflector and for reflecting ambient light incident on the opposite side of said transreflector, one or the other of said sides of said transreflector having a plurality of angled reflective surfaces each having a reflective layer or covering for reflecting the ambient light incident on said opposite side of said transreflector and a plurality of other angled light transmissive surfaces for transmitting the light emitted by said panel surface incident on said one side of said transreflector.

Claim 91 (currently amended): The system of claim 90 wherein said reflective surfaces are shaped, oriented or angled to reflect more than 50% of the light striking said one side of said transreflector.

Claim 92 (currently amended): The system of claim 90 wherein said light transmissive surfaces are shaped, oriented or angled to transmit more than 50% of the light striking the other side of said transreflector.

Claim 93 (currently amended): The system of claim 90 wherein said reflective surfaces are shaped, oriented or angled to reflect more than 50% of the light striking said one side of said transreflector and said light transmissive surfaces are shaped, oriented or angled to transmit more than 50% of the light striking the other side of said transreflector.

Claim 94 (original): The system of claim 90 wherein said panel member has a pattern of individual optical deformities for producing a particular light output distribution from said panel surface that is tuned to the side of the transreflector that receives incident light emitted by said panel surface such that said transreflector transmits a greater portion of the light emitted by said panel surface.

Claim 95 (original - withdrawn): The system of claim 90 wherein said reflective surfaces and said light transmissive surfaces are formed in or on said opposite side of said transreflector, and said one side of said transreflector has optical deformities that transmit the incident light emitted from said panel surface and direct the light to said light transmissive surfaces in or on said opposite side of said transreflector.

Claim 96 (original - withdrawn): The system of claim 95 wherein said optical deformities comprise at least one of the following: prismatic grooves, lenticular grooves, cross grooves and individual optical deformities of well defined shape.

Claim 97 (original - withdrawn): The system of claim 96 wherein said individual optical deformities have at least one of the following shapes: pyramidal, frusto-pyramidal, planar with rounded sides, conical, frusto-conical, sloping sides with rounded ends, and semispherical.

Claim 98 (original - withdrawn): The system of claim 95 wherein said optical deformities on or in said one side of said transreflector have a shape pattern that corrects for any non-uniformity in the light output distribution from said panel surface.

Claim 99 (original - withdrawn): The system of claim 95 wherein said optical deformities on or in said one side of said transreflector have an angular shape pattern that changes with the distance from the input edge of said panel member to correct for changes in the angular distribution of the light emitted from said panel surface as the distance from the input edge of the panel member increases.

Claim 100 (original): The system of claim 90 wherein said reflective surfaces and said light transmissive surfaces are in or on said one side of said transreflector, and said opposite side of said transreflector has optical deformities for redirecting the light

exiting from said opposite side more toward the normal relative to said opposite side of said transreflector.

Claim 101 (original): The system of claim 100 wherein said optical deformities comprise a pattern of prismatic surfaces.

Claim 102 (original): The system of claim 100 wherein said optical deformities comprise a pattern of individual optical deformities each having a well defined shape.

Claim 103 (original): The system of claim 90 wherein said reflective surfaces and said light transmissive surfaces are in or on said one side of said transreflector, and said opposite side of said transreflector has at least one of a texture, chemical etch, laser etch, and optical deformities shaped to redirect the light transmitted by said transreflector.

Claim 104 (currently amended): The system of claim 103 wherein said opposite side of said transreflector has said optical deformities which comprise at least one of the following: prismatic grooves, lenticular grooves, cross grooves and individual optical deformities of well defined shape.

Claim 105 (currently amended): The system of claim 90 wherein said panel member has a pattern of individual optical deformities for producing a particular light output distribution from said panel surface, at lest some of said deformities of said panel

member having a length and width that is substantially smaller than the length and width of said panel member and a well defined shape including at least one sloping surface for reflecting or refracting light impinging thereon out of said panel surface.

Claim 106 (original): The system of claim 105 wherein said sloping surface of at least some of said deformities of said panel member is oriented to face an optically coupled area of said input edge across said panel member.

Claim 107 (currently amended): The system of claim 105 wherein the area of ~~the~~ said sloping surface of at least some of said deformities of said panel member varies across said panel member to attain a desired light output distribution from said panel surface.

Claim 108 (original): The system of claim 105 wherein said deformities of said panel member comprise depressions or projections in or on said panel member.

Claim 109 (currently amended): The system of claim 105 wherein said sloping surface of at least some of said deformities of said panel member is a planar surface, further comprising at least one light source optically coupled to said input edge, said planar surface of the respective deformities of said panel member being oriented across said panel member to face an area of said input edge to which the light source is optically coupled.

Claim 110 (original): The system of claim 105 wherein at least some of said deformities of said panel member are arranged in clusters across said panel member, and at least some of said deformities in each of said clusters have a different size characteristic that collectively produce an average size characteristic for each of said clusters that varies across said panel member.

Claim 111 (original): The system of claim 105 wherein at least some of said deformities of said panel member are arranged in clusters across said panel member, and at least some of said deformities in each of said clusters have a different shape characteristic that collectively produce an average shape characteristic for each of said clusters that varies across said panel member.

Claim 112 (original): The system of claim 111 wherein at least some of said deformities in each of said clusters have a different depth or height that collectively produce an average depth or height characteristic for each of said clusters that varies across said panel member.

Claim 113 (original): The system of claim 111 wherein at least some of said deformities in each of said clusters have a different slope that collectively produce an average slope characteristic for each of said clusters that varies across said panel member.

Claim 114 (original): The system of claim 111 wherein at least some of said deformities in each of said clusters have a different orientation that collectively produce an average orientation characteristic for each of said clusters that varies across said panel member.

Claim 115 (original): The system of claim 111 wherein at least some of said deformities in each of said clusters have a different width that collectively produce an average width characteristic for each of said clusters that varies across said panel member.

Claim 116 (original): The system of claim 111 wherein at least some of said deformities in each of said clusters have a different length that collectively produce an average length characteristic in each of said clusters that varies across said panel member.

Claim 117 (original): The system of claim 105 wherein the orientation of at least some of said deformities of said panel member varies across said panel member.

Claim 118 (original): The system of claim 105 further comprising at least one light source optically coupled to said input edge, said deformities of said panel member being arranged in rows extending radially relative to an area of said input edge to which the light source is optically coupled.

Claim 119 (original): The system of claim 105 further comprising a display having one side in close proximity to a side of said transreflector facing away from said panel member.

Claim 120 (original): The system of claim 119 wherein said display is signage.

Claim 121 (original): The system of claim 119 wherein said display is a liquid crystal display.

Claim 122 (original): The system of claim 119 wherein said display is a membrane switch.

Claim 123 (original): The system of claim 121 wherein said pattern of said optical deformities of said panel member is varied such that the spacing of said optical deformities of said panel member does not cause interference with any pixel spacing of the liquid crystal display.

Claim 124 (currently amended - withdrawn): The system of claim ~~110~~ 105 wherein at least some of said optical deformities of said panel member have at least one additional surface for reflecting or refracting light impinging on said additional surface in different directions to spread light across said panel member to provide a more uniform distribution of light emitted by said panel surface.

Claim 125 (original - withdrawn): The system of claim 124 wherein said additional surface is curved.

Claim 126 (original - withdrawn): The system of claim 124 wherein said sloping surface is planar and said additional surface is curved.

Claim 127 (original - withdrawn): The system of claim 126 wherein each of said optical deformities of said panel member only has two surfaces, said planar surface and said additional surface.

Claim 128 (original - withdrawn): The system of claim 127 wherein said additional surface intersects said sloping surface.

Claims 129-145 (canceled)

Claim 146 (new): The transreflector of claim 1 wherein said reflective layer or covering for each of said reflective surfaces is a reflective coating.

Claim 147 (new): The transreflector of claim 1 wherein said reflective layer or covering for each of said reflective surfaces is made of metal.

Claim 148 (new): The transreflector of claim 13 wherein said reflective layer or covering for each of said reflective surfaces is a reflective coating.

Claim 149 (new): The transreflector of claim 13 wherein said reflective layer or covering for each of said reflective surfaces is made of metal.

Claim 150 (new): The system of claim 81 wherein said reflective layer or covering for each of said reflective surfaces is a reflective coating.

Claim 151 (new): The system of claim 81 wherein said reflective layer or covering for each of said reflective surfaces is made of metal.